

## **CalNex Forecast Notes - Tuesday, May 25, 2010**

### **Anticipated Activities of Platforms**

#### **WP-3D**

**Tuesday:** SoCal afternoon-into-night flight.

**Wednesday and Thursday:** iffy with clouds and rain in the forecast, so anticipate one and perhaps two no-fly days.

#### **NOAA Twin Otter:**

**Tuesday:** morning & afternoon flights in SoCAB

#### **CIRPAS Twin Otter:**

#### **NASA King Air:**

#### **R/V Atlantis:**

**Tuesday:** Santa Monica Bay or LA harbor.

**Tuesday nite:** LA bight

**Wednesday:** LA bight

**Friday:** Port of LA

### **Local Features:**

**Tuesday:** P3 afternoon-to-night flight in SoCal

SFBA plume moving SE along coastal ranges with flow east through Altamont and Cottonwood Passes; SJV outflow into Mojave Desert; SoCAB outflow through Banning Pass

**Suggestion:** although good air quality, may be interesting to investigate Bay Area signature against clean background by flying further north along coast to Morro Bay and turning inland through Cottonwood Pass and exiting SJV through Tehachapi Pass into Mojave Desert; should see signature of LA plume east of Banning Pass.

**Wednesday/Thursday:** precip chance in NorCal; lower in SoCal

## **California Synoptic Overview** - Jason Branz (jbranz@arb.ca.gov)

### **Monday May 24**

- Large upper low remains over Gulf of Alaska
- Trough moves E into Great Basin
- Transport flow shifts NW
- Onshore surface flow both north and south

### **Tuesday May 25**

- Strong shortwave trough rotates through the north half of CA
- Rain possible north of Monterey
- Transport flow turns W/SW
- Onshore surface flow continues

### **Wednesday May 26**

- Precip continues for Sierra
- Shortwave trough rotates through central CA late

### **Thursday-Friday May 27-28**

- Rain possible Thursday from Monterey northward but lighter than Tuesday
- Upper low opens up and moves SE through the state Friday
- Weak ridging returns for weekend? Maybe

## **Large Scale Transport Notes** - Brad Pierce (brad.pierce@noaa.gov))

### **LA/Bakersfield AIRNOW Site Comparison**

Good O3/PM2.5 LA/Bakersfield AQ during FX period

### **LA/SF AIRNOW Ensemble**

LA Long-range transport to southeast then shifting to east during FX period.

SF Long-range transport shifting from south to north east during FX period.

### **500m RDF FX 00Z 05/26 (Tue Afternoon)**

Intercontinental CO enhancement over western US. Clean maritime airmass over Northern CA. Descending polluted air over S CA/AZ

Moderate (5-10 ppbv/day) background O3 P-L over LA

### **500m RDF FX 00Z 05/27 (Wen Afternoon)**

Clean maritime airmass over CA. Descending polluted air over Mexico/AZ. Clean Gulf air advecting Northward  
Low (~5 ppbv/day) background O3 P-L over LA. Low (<5 ppbv/day) O3 P-L NE of SF

**500m RDF FX 00Z 05/28 (Thu Afternoon)**

Clean Pacific airmass over CA/NV/AZ. Clean Gulf air over NM/CO  
Moderate (~5-10 ppbv/day) background O3 P-L S LA. Moderate (5-10ppbv/day) O3 P-L NE of SF

**500m RDF FX 00Z 05/29 (Fri Afternoon)**

Clean Pacific airmass over CA/NV/AZ. Descending polluted air over Mexico. Clean Gulf air over NM/CO  
Moderate (5-10 ppbv/day) background O3 P-L over LA and SF

**Area Forecast Details**

**San Francisco Bay Area** - Danny Kam (dkam@airquality.org)

**Tuesday**

- SE to SW 10kt in the morning; S 15kt in early afternoon shifting SW; W 10kt in the evening
- MBL mostly around 1,000ft with areas up to 5,000ft

**Wednesday**

- W to NW 5 to 10 kt in the early morning; shift S to SW 5kt by late morning and increase to 10kt in the afternoon;
- MBL varying between 500 and 5,500 ft

**Thursday**

- SW 10kt turns W 5 to 10kt around mid-morning; NW 10kt at night
- MBL 1,500 to 6,000 ft

**Friday**

- NW wind strengthen into 15kt in the morning and max at 25 kt in the afternoon and early evening
- MBL 1,000 to 2,000 ft

**Extended**

- Moderate to strong NW continues on Saturday and Sunday

**Sacramento Valley** - Danny Kam (dkam@airquality.org)

**Tuesday**

- Profiler shows light W and saw from light SE for northern SV; S 5 to 10kt wind during the day; S wind continues (northern SV) and possibly SW onshore flow through the delta (southern SV) in the evening
- AM PBL 1,000 ft; PM PBL 4,500 to 8,000 ft
- Max aftn temp: 18C
- Stratus and altostratus lingers over the region by late morning; breaks into cumulus and stratocumulus at night; 80% chance of rain; Good air quality: max 8-hr mean O3 in 0.05 ppm range

**Wednesday**

- Light SW onshore through the delta for southern SV in early morning, very light wind mid-morning, S 5kt around late morning, turns W 5 kt in the evening, early evening wind speed between 5 to 10kt (COAMPS indicates 15kt);
- Max aftn temp: 19C
- AM PBL 1,000 to 7,000ft; PM PBL 4,000 to 10,000ft
- Mostly cloudy with cumulus and stratocumulus; 40% chance of rain, decreases though the day
- Good air quality: max 8-hr mean O3 in 0.04 ppm range

**Thursday**

- S and SE wind between 5 to 10kt; SW 5kt in the afternoon; light variable wind in the evening
- AM PBL 1,000 to 5,000 ft; PM PBL 7,000 ft
- Increasing altostratus and stratus in the morning; breaks into scattered cumulus and cumulonimbus in the afternoon; 70% chance of rain
- Max aftn temp: 17C
- Good air quality: max 8-hr mean O3 in 0.04 ppm range

**Friday**

- Light NW
- Minimal downslope flow because of countering pressure gradient
- Max aftn temp: 21C
- Partly cloudy becomes mostly clear; 20% chance of precipitation in the morning decreases to none
- Good air quality: max 8-hr mean O3 in 0.04 ppm range

**Saturday & Sunday**

- NW wind on Saturday
- Downslope flow resumes
- Warming trend
- Mostly sunny over the weekend

- Higher O3 conc, but still good air quality

**San Joaquin Valley** – Shawn Ferreria (Shawn.Ferreria@valleyair.org)

**Tuesday, May 25, 2010:**

**Wind Flow:** The lower air profilers this morning depict light and variable wind flow up to 3,000 feet, strengthening from the south to southeast above. Surface winds this morning are showing light south to southeasterly surface flow present across various parts of the SJV. The 0Z CANSAC model shows light southerly flow present over SJ County through most of the day, cutting off the Delta flow. Inflow into the SJV will be from Pacheco, Altamont, and Cottonwood passes. Outflow will be toward the Deserts. Typical, up slope and down slope flow will occur over the Sierra's (mountainous terrain). Overnight, light and variable flow will be present over the entire SJV. A weak Delta flow will occur this evening into the northern San Joaquin County.

**Boundary layer mixing heights:** This morning's aircraft sounding from Bakersfield depict a moderate inversion of 11 degrees Fahrenheit from the surface up to 1,500 feet. The morning's aircraft sounding from Fresno shows a moderate inversion of 8 degrees Fahrenheit from the surface up to 1,000 feet. The 0Z CANSAC model shows maximum boundary layer mixing heights between 3,500 and 4,500 feet this afternoon. Lower mixing heights are predicted over the northern SJV of 2,000 to 4,000 feet.

**Air Quality:** Good air quality conditions are predicted District-wide from Madera County northward today. Moderate air quality conditions are forecast for Fresno county southward. A disturbance from the eastern Pacific will cause increasing clouds across the District later today.

**Wednesday, May 26, 2010:**

**Wind Flow:** The 0Z CANSAC model is predicting weak inflow from the Delta and Altamont passes near 12Z tomorrow. Onshore flow is predicted through the passes (Cottonwood and Pacheco). Overnight flow continues out toward the Deserts. Light downslope flow will be prevalent over the mountainous terrain during the evening hours. Winds will be light and variable elsewhere in the District. During the afternoon hours, the onshore flow will strengthen through the passes, especially, Cottonwood and Pacheco. Flow towards the Deserts will also strengthen.

**Boundary Layer Mixing Heights:** Between Tuesday and Wednesday (overnight), mixing will be minimal between 500 to 1,000 feet, due to the front passing over the District. Maximum boundary layer mixing depths on Wednesday will range between 4,000 and 5,000 feet.

**Air quality:** Good air quality is predicted District-wide tomorrow.

**Thursday through Friday, May 27 and 28, 2010:**

Good dispersion conditions are predicted to continue through the early part of the weekend as the trough lingers over California. Maximum mixing depths will remain between 5,000 to 7,000 feet. Surface wind flow will steadily increase from the northwest upon trough passage.

**Saturday, May 29, 2010:** A ridge from the eastern Pacific will nose toward the District by Saturday, with increasing stability, lighter wind flow and deteriorating dispersion conditions.

**Central Coast** - Gary Arcemont (garcemont@co.slo.ca.us)

**Current Wx:** Cloudy offshore and along coast. Clear in SLO. Fairly well mixed atmosphere, with sfc morning inversion.

Ft Ord: Weak sfc inversion 2 deg C      Lost Hills: 4 deg C sfc inv, top ~500ft

Oakland: No sfc inversion, weak elevated inversion -3.1 degC @2460m, 0 deg C 2545m, E flow ridgetops Temblor Range

**Synopsis 5/25 – 5/31:** Models indicate persistent trough over west coast US through Memorial Day - NW flow along the coast – W to SW inland  
-Windy on Friday with blowing dust in afternoons – Oceano Dunes/Nipomo Mesa &

Sundowner winds possible in canyons Gaviota/Santa Barbara coast

**Yesterday, Monday 5/24:** Trough NV, NW flow along coast. W to SW flow over interior valleys and mountains.

**Today, Tuesday, 5/25:** Trough approaching CA. E-NE flow eastern San Luis Obispo County ridgetops/Temblor Range – Chance precip late.

**Wednesday:** Trough CA, Cloudy – Chance precipitation. SW flow aloft/ interior ridgetops.

**Thursday:** Trough deepening over CA, Cloudy – Chance precipitation. NW flow aloft.

**Friday:** Trough over NV, partly cloudy, NW flow aloft. Blowing dust in afternoon/ Moderate AQ – Oceano Dunes/Nipomo Mesa

**Saturday:** Trough over CO, NW flow aloft. Mostly clear. Offshore flow brings warming to coast, and transport of ozone/precursors to coast/ridgetops. Ozone increases. NE flow eastern San Luis Obispo County ridgetops/Temblor Range.

**Sunday:** Zonal flow, short wave trough over CA. NE flow eastern San Luis Obispo County ridgetops/Temblor Range. 850 mb temps reach 19 deg C, temperature inversion strengthens. Ozone increases - producing moderate air quality interior valleys/ridgetops.

**Monday:** Broad trough over CA. NE flow eastern San Luis Obispo County ridgetops/Temblor Range. Marine layer returns, stratus late.

**Tuesday:** Broad trough over Western US. Night and morning low clouds coast – clear inland.

**Air quality:** Good air quality with the following exceptions - blowing dust midday/afternoons-Oceano Dunes/Nipomo Mesa - Moderate AQ – Friday 5/28, moderate air quality interior ridgetops on Sunday 5/30.

**Significant features for study: Blowing dust Oceano Dunes/Nipomo Mesa peaking midday/afternoon - Friday 5/28, Ozone increases along Temblor Range ridgetops Saturday 5/29, Sunday 5/30, Monday 5/31.**

## **SoCal Coastal Waters**

### **+ Tuesday afternoon (00Z 25 May)**

- Marine Low Clouds
  - \* OVC St w/ rain Crescent City to Point Sur
  - \* OVC/BKN St/StCu Point Sur to Santa Barbara
  - \* SCT/CLR StCu Santa Barbara to San Diego
- SOCAL Marine Layer Winds
  - \* W 10-15 kts inner and outer waters

### **+ Tuesday evening (06Z 25 May)**

- Marine Low Clouds
  - \* OVC St w/ rain Crescent City to San Luis Obispo
  - \* OVC St San Luis Obispo to San Diego
- SOCAL Marine Layer Winds
  - \* W 10-15 kts inner and outer waters

**+ Wednesday morning (12Z 26 May)**

- Marine Low Clouds
  - \* OVC/BKN StCu w/ rain Crescent City to Santa Barbara
  - \* OVC/BKN St/StCu Santa Barbara to San Diego
- SOCAL Marine Layer Winds
  - \* W 0-10 kts inner and outer waters

**+ Wednesday afternoon (00Z 27 May)**

- Marine Low Clouds
  - \* SCT Cu with rain showers Crescent City to Monterey
  - \* SCT StCu Monterey to San Diego
- SOCAL Marine Layer Winds
  - \* W 10-15 kts inner and outer waters

**+ Thursday morning (12Z 27 May)**

- Marine Low Clouds
  - \* BKN/SCT StCu/Cu w/ rain showers Crescent City to San Luis Obispo



- \* BKN/SCT StCu/Cu San Luis Obispo to San Diego

- SOCAL Marine Layer Winds

- \* WNW 10-15 kts inner and outer waters

### **+ Thursday afternoon (00Z 28 May)**

- Marine Low Clouds

- \* SCT/CLR Cu w/ Isolated rain showers Crescent City to San Luis Obispo

- \* SCT Cu San Luis Obispo to San Diego

- SOCAL Marine Layer Winds

- \* WNW 15-25 kts inner and outer waters

### **+ Friday morning (12Z 28 May)**

- Marine Low Clouds

- \* SCT/CLR St/StCu Crescent City to San Diego

- SOCAL Marine Layer Winds

- \* NW 15-25 kts outer waters

- \* ESE 0-5 kts inner waters

### **+ Friday afternoon (00Z 29 May)**

- Marine Low Clouds

- \* CLR Crescent City to San Diego

**South Coast** - NO FORECAST TODAY

**general comment:** more troughing, cool, even some rain this week. Temps not near normal until Saturday